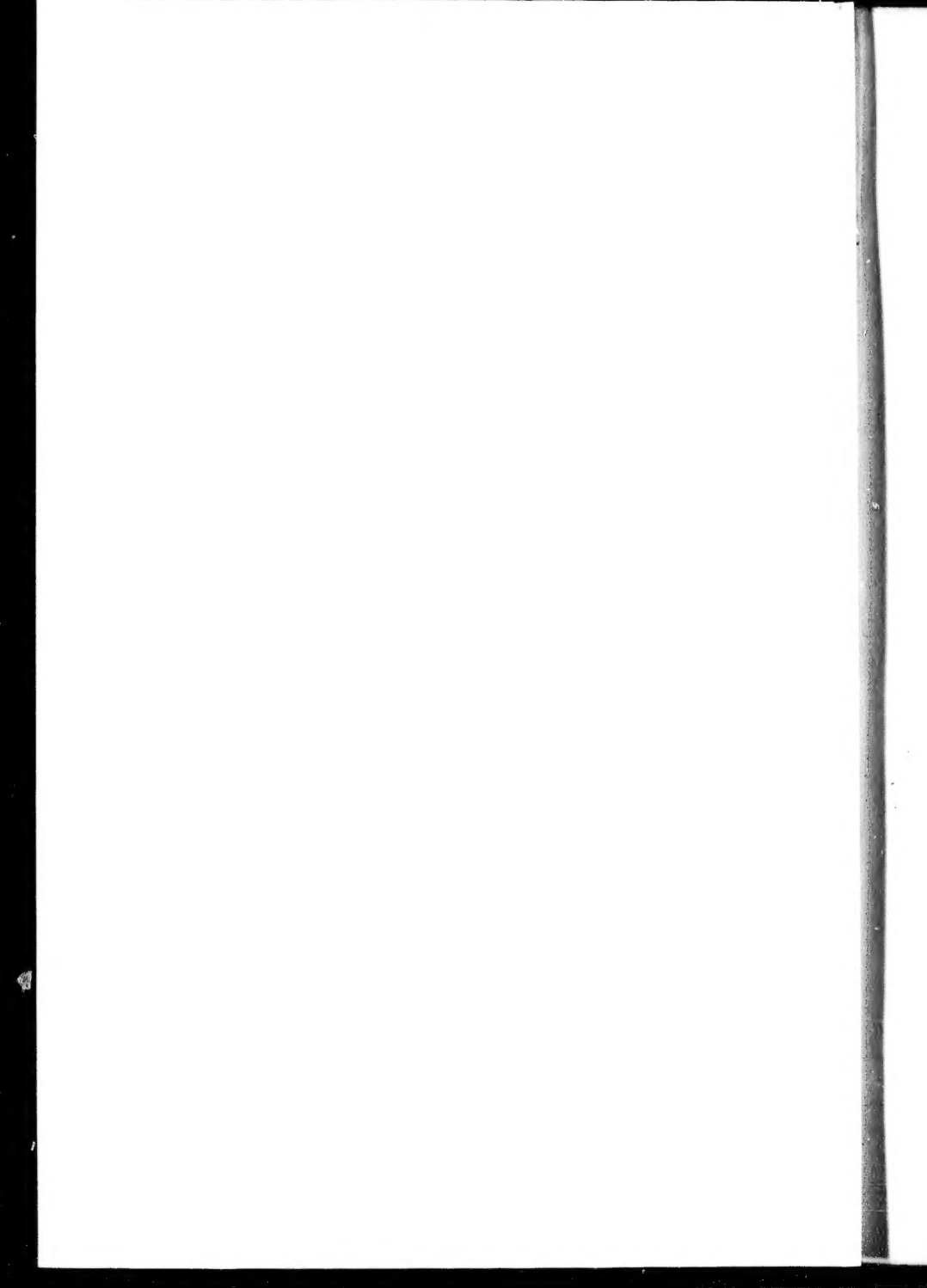




THE PRESENT STATE OF SCIENCE ON THE NORTH-
WESTERN SLOPES OF THE ROCKY MOUNTAINS.

BY ROBERT BROWN.

WITH most people the region in question is less associated with scientific workers than with bowie knives, "difficulties," gold-mining, and fur-trading; and although we are fain to confess that the majority of the sojourners in that wild region are still not a little addicted to these more or less harmless popular pursuits; yet, as I propose to shortly indicate, in a review of the present state of science in these countries, there are some who are labouring even there to add to the common fund of knowledge.

First in geographical position and importance comes *California* and the state recently constituted of the region in the vicinity of the Sierra-Nevada mountains—*Nevada*.

First in that section comes *San Francisco*, a city which in eighteen years has risen from a collection of cotton tents on some sand-hills to a substantial city of 150,000 inhabitants. In San Francisco the California Academy of Natural Sciences is the principal object of attraction to naturalists. It meets monthly at its rooms at 622 Clay Street, and is now in a tolerably prosperous condition. The Society lingered from its organization in 1853 until recently with a membership never exceeding forty, contributing many interesting facts to the general sum of scientific and practical knowledge, but unable to attain that broader field of usefulness which numbers and money can alone secure. It is now, however, likely to be more prosperous. The liberality of members has enabled it to obtain somewhat better rooms, which are fitted up to preserve and display its many thousand specimens of minerals, its 4000 conchological specimens, its 1500 specimens of palæontology, and its large herbarium, valuable library, and miscellaneous collection, historical and ethnological. They are now prepared to exchange with individuals and societies in other parts of the world, and thereby to extend much their scope of operations. Their "Proceedings" are published yearly in 8vo, with woodcuts, and though the execution, typographic and zylographic, is not superb, yet it perfectly answers every purpose, and suits the Society's limited funds. We believe that the woodcuts

are all executed by one of the members (Dr Kellogg) free of expense to the Academy.

The following gentlemen have distinguished themselves by their labours in the different branches of natural science which they respectively chiefly affect, viz.: in geology, Professor J. D. Whitney (state geologist, President of the Academy), Messrs Gabb, W. P. Blake, J. E. Clayton, Ashburner, Dr James Blake, and Auguste Remond; in mineralogy, Messrs W. S. Keys, J. Ross Browne, and Dr G. E. Moore; in botany, Messrs H. N. Bolander, Brewer, Bloomer, and Dr Albert Kellogg; in zoology (general), Dr J. G. Cooper, Eugene V. Lorquin; in conchology, Mr W. J. W. Harford, Dr Newcomb, and R. E. C. Stearns; in ichthyology, Dr W. O. Ayres; in zoophylogoy, Mr Gabb; in infusoria, Dr James Blake; in entomology, Dr H. Behr (lepidoptera); in magnetism, Col. Ransom; and in seismology, Dr J. B. Trask; all gentlemen willing to exchange observations or specimens with those in other countries.

The body is out of debt, perhaps for the all-sufficient reason that the credit of science has hitherto been rather weak in San Francisco. The State Geological Survey, under the efficient direction of Professor Whitney, is still pursuing its operations, though under many obstacles and difficulties incidental to the troubles about the annual grants from a practical-minded legislature. They have already published two volumes, and others will be forthcoming as soon as the necessary funds are in hand. The gardens of Mr Woodward, and the very excellent museum in the "What Cheer House," ought not to be passed without notice. I believe that the German Society of Naturalists in San Francisco does not now exist.

In various other parts of California are scattered a few naturalists, of whom we may mention Mr Andrew Taylor of Santa Barbara, an ethnologist well known in Europe, who is preparing a large work on the ethnology of California, on which subject he has already published a series of articles in the *California Farmer* some years ago, and Mr John Buttle, an Englishman, formerly of the Royal Engineers, and assistant to Dr Lyall, botanist of the North-West Boundary Commission, and also one of my most valued lieutenants in the Vancouver Exploration, a portion of which he afterwards carried on himself. He has now established himself as a land-surveyor at San Jose, fifty miles south of San Francisco, and is prepared to make collections of plants, seeds, &c., in any part of California. Dr Thomas Logan of Sacramento, is a zealous

meteorologist. Better information is much to be desired regarding the natural history (and the geography as well) of Sonora, Arizona and the head of the Gulf of California; but though governments have been established there, yet the troubled state of the country through the interminable Apache and Comanche wars renders travelling anything but safe. Accordingly nothing has been done in that vicinity of great importance since the expedition of Ives, the Mexican Boundary Commission, and the Pacific Railroad Survey. There appears, however, to be some stray collectors there, for parcels of plants, &c., are occasionally arriving at the California Academy's rooms from that country.

(2.) *Oregon, Washington Territory, Montana, and Idaho.*

I wish I could make an equally satisfactory report regarding the broad quartette of partially-explored, and thinly-peopled states and territories embraced under this heading. I know of scarcely one naturalist resident in these countries, and what has been done has been by transitory visitors; and in Idaho and Montana, notwithstanding the visits of Townsend, Douglas, and others, there is still a good deal to be done in zoology and the botany of herbaceous plants. There are, however, one or two solitary individuals amid the rude backwoodsmen—mining population, trappers, rowdies, and ruffians—which compose the bulk of the population of these territories, particularly the latter two, by whom the wandering naturalist would be intelligently appreciated, such as Dr Thompson and Colonel Drew in Jacksonville, Rogue River, both of whom, though not scientific men in the strict sense of the phrase, are yet exceedingly intelligent collectors of minerals, antiquities (of the Indians), &c.; and at the Dalles of the Columbia resides the Rev. Mr Conton, a very enthusiastic geologist and successful collector.

In Washington territory, Mr J. G. Swan (author of "Three Years in Washington Territory"), resides at Neah Bay, diligent in collecting specimens, and not neglectful of his duties as a teacher of the Indians. At Whatcom, Mr Bennett "picks up" anything he thinks of interest, and sends to the all-engrossing "Smithsonian."* My good friend, the Rev. Father Cherouse of Snoqualami

* In relation to this, I may remark that, wherever I went in Washington Territory, even among the rudest backwoodsmen, I found, at least, three literary documents, viz., a pack of cards, a quack medicine advertising almanack, and a Smithsonian Institute Report; and to the influence of the latter may be traced that intelligent appreciation of science so universal there.

Indian Mission, to whom I am indebted for several interesting specimens, also pursues a like laudable course, though on a smaller scale. The Hon. Mr Hines is always ready at Olympia to climb a mountain with any one, and Mr Victor of Portland, to note all about it. Dr David Walker, F.L.S., formerly well known as surgeon and naturalist of M'Clintock's *Fox* Expedition, is also in the Territory, engaged as a medical officer of the army; and when I last heard from him was at Fort Steilacoom busily looking after crustacea and shells. There may be more observers, but if there are Messrs Edward Geddings, and Jerard S. Hurd, of the Surveyor-General's Office at Olympia (whom not to know in that country is to proclaim yourself unknown), can and will supply the information.

(3.) *Vancouver Island, British Columbia, and north to the Arctic Sea.*

Though Vancouver Island and British Columbia are now united in one political division under the latter name, yet nothing has been done to explore the interior of the former large island since the expedition entrusted to my direction, ("Vancouver Island Explorations—Colonial Blue Book, 1864,")* by order of the Colonial Government and Board of Explorations. Since the Alberni saw-mills have been stopped on the outer or western coast of the island, that extensive stretch of coast is only tenanted by wild Indians; and the removal of Mr Hamilton Moffatt, and Mr Pym Nevins Compton, from Forts Simpson and Rupert of the Hudson's Bay Company, has left the northern coast without any resident naturalist. In Victoria, however, a town not very prosperous commercially (just at present), there are several gentlemen who, though not publishing naturalists, are yet very intelligent collectors when opportunity offers, such as Messrs John Gastineau, C.E., Robert Homfray, C.E. Bushell, E. T. Coleman, F. Dally, and F. M. Spence. Dr Comrie and Commander Porcher of H.M.S. *Sparrowhawk* were proposing to do something towards the natural history of the country; and as they are resident for some years on the coast might add to our knowledge. Sir James Douglas, ex-governor, is a good horticulturist, and gives great assistance to natural-

* *Vide*, also, Proceedings R.G.S., 1865; Petermann's Mittheilungen; "Le Globe;" Trans. Bot. Soc.; Edinburgh New Phil. Journal; the "Farmer," &c.

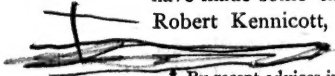
ists by his extensive acquaintance all over the country, and knowledge of subjects connected therewith. Messrs Robert King (a farmer near Victoria, and formerly in Messrs Veitch's employ), and Clayton, a nurseryman, are ready to supply seeds and trees, &c. Mr A. C. Anderson, long in the Hudson's Bay Company's service, and Mr Geo. H. Wilson-Brown, are also well acquainted with the natural history of the country. The latter gentleman especially is ready to collect, and enter into correspondence with naturalists at home. Mr Lloyd Jones is interested in plants (particularly ferns), as is still to some extent Dr W. F. Tolmie, chief factor of the Hudson's Bay Company, after whom Sir William Hooker named the genus *Tolmieia*, and Townsend his *Sylvia Tolmiei*. Mr J. Robertson-Stewart, one of the principal importers and merchants, is also at all times ready to assist in the pursuits of a naturalist. At Nanaimo Capt. Price makes extensive collections of the cretaceous fossils found in connexion with the coal; and lastly (but far from least), Mr James Hepburn, though really a resident of San Francisco, yet spends the greater part of his summers on this coast, collecting birds for the most part, and has accumulated a really princely collection of the Pacific Avi-fauna. He is probably the only thorough zoologist north of California. On the mainland there are still fewer naturalists, British Columbia being very sparsely settled, and to a great extent unexplored and unpeopled, save by Indians.

Dr Jones, at New Westminster, collects insects, and has an interesting set of Lepidoptera; and another medical practitioner, Mr Featherstonhaugh, takes meteorological observations, &c. At Lilloett, I found one of the traders (Mr Foster) very attentive to and interested in science, and capable of affording a good deal of useful information. Mr W. C. Cormack, of New Westminster, studies Coniferæ and other trees. Mr Joseph M'Kay, of the Hudson's Bay Company at Fort-Yale, is also a man of the same stamp, with some knowledge of natural history, and always very ready to advance the views of naturalists. The northern portion of British Columbia is very little known, and might still have remained a terra incognita, had it not been for the establishment, shortly after the close of the American Civil War in 1865, of "The Collins Russo-American Overland Telegraph Company," which, in the prospect of the failure of the Atlantic cable, proposed to run a line of telegraph right north through British Columbia and Russian America to Prince of Wales Cape in Behring's Straits, and then

across Kamschatka, Siberia, and Russia, to St Petersburg. The project was a thoroughly wild-goose scheme, devised in total ignorance of the country, and, as might have been expected, fell through at an early period,—not, however, before extensive preparations had been completed, many most excellent explorations made, and a portion of the line built. Staffs of scientific officers were attached to all the surveying and exploring parties, and they have already added much to our knowledge of the country. Amongst those which I shall particularly notice, was the exploration made from Lake Tatla, in British Columbia, to the Stikeen River, over 700 miles of unexplored country, in the depth of winter, by Major Frank L. Pope, Mr G. Blenkinsop, and two Indians,—the party being encumbered with no baggage but a couple of buffalo robes and a little hand sledge, on which they dragged their food (a daily ration of six ounces of pemmican) and their guns and ammunition. They were seventy-five days in the open air, went over a flattish country, where they seemed to think the season was earlier than on the coast; and when I met them at Fort Rupert in May 1866, they looked exceedingly hearty, and nothing the worse of their extraordinary journey. A botanist wintered with the party at Tatla Lake, and Major Pope informed me that he had made a good collection of plants.

In other portions of British Columbia, Chief Justice Begbie and Mr Oliver Hare, may be mentioned as likely individuals for a naturalist to apply to for information on the zoology of the southern portion of the country. The government are also occasionally sending out little parties of surveyors, in different sections; but science has no part of these expeditions, nor is there any special scientific officer attached to the government, though the revenue depends upon mines for its support.

The immense region hitherto known as Russian-America (or *Alaska*, as it is now called by its new masters) is an almost unknown land, at least in the interior. The Telegraph Company have made some explorations, principally under the direction of Robert Kennicott, the well known naturalist;* and the recent



* By recent advices in the San Francisco "Bulletin," from Michaelowski, the Russian settl ment in Norton Sound, the world is informed of the untimely death, in May 1866, of that gentlemen, one of the greatest explorers and naturalists in the annals of north-west America. Mr K. had travelled extensively throughout the country between the Rocky Mountains and the Pacific and Atlantic for

acquisition of this tract by the United States, will most likely be the means of greatly adding to our knowledge of the country. Already I learn that an exploring expedition has left for there. To this party, Dr Albert Kellogg, whom I have referred to as an eminent botanist, is attached as surgeon and naturalist; and we may expect from his researches, much new matter from the interior and on the coast, to our knowledge of which, Mertens, Bognard, Middendorff, Steller, Escholtz, Chamisso, Beechey, Seeman, and others, have already contributed.

I close this short and necessarily imperfect review of the present state of science on the Pacific Coast, by apologising to those whom in ignorance I have omitted to mention, as students of science in that broad field, where the harvest is ripe, but the reapers are few. There is still much to be done in these countries in zoology and botany, particularly in the lower orders of plants (Algæ, Fungi, Lichens, Hepaticæ, Mosses, and Jungermanniæ), and animals, and in tracing their geographical dis-

the last ten years, often in Government employ, in the exploring surveys for railroad and wagon routes, and as often on his own account as an ardent and skilful naturalist. From 1861 to 1864 he made several explorations in connexion with the Smithsonian Institute, and the Chicago Society of Natural Sciences, as a scientific naturalist, into the most unfrequented portions of the northern domain of the Hudson's Bay Company. In the latter part of this time he made a most adventurous and perilous journey to the head-waters of the Yukkon and Stickeen rivers of Russian-America and forwarded to his friends, through the liberality of the Hudson's Bay Company, an immense number of specimens in every department of natural history. His discoveries in geography and zoology were considered by the learned as of the highest importance; and the reports of the Smithsonian and of the Chicago Academy, are full of the results of his constant and multifarious labours. On the formation of the Russo-American Telegraph Company Expedition, under Col. Bulkeley, his valuable services were immediately secured, and great seems to have been the assistance which his experience and eminent talent enabled him to render to that enterprise, in which his whole heart as a naturalist and as a well-wisher to his fellow-men seems to have been concentrated. In the prime of life, and with hosts of friends well earned by indefatigable and unselfish labours in the cause of science and humanity, Robert Kennicott laid his life down, like the brave soldier, at the utmost frontier of the battle-fields of nature. In ten years he had, it may be said, coasted the Arctic shores from Hudson's Bay to one of the remotest points of Russian-America, at the very mouth of Behring's Straits. He had roamed for years amongst the wildest tribes of the Pacific Slope, often where the foot of the white man had never trod within 200 leagues, and there was scarcely any section of our domain which he had not personally examined as a student of nature.

tribution and the laws affecting that distribution. A monograph of the trees is also much required, and the fresh-water and lacustrine fishes, as well as the marine, would yield excellent results. With birds, less remains to be done, as they are, thanks to the labours of Mr Hepburn, Mr Lord, and of the Pacific Railroad naturalists, tolerably well wrought up. Our knowledge of the cetacea and seals of the North Pacific is almost a blank. Though I can scarcely think that, with the enormous expense of travelling through these countries, and the difficulties of transportation, it would "pay" a naturalist now-a-days to go on an errand to these countries, yet one resident there, could at odd times, without interfering with his professional occupations, do much towards elucidating some unsettled points in their natural history; and the hospitable generous character of people, would at all times lead his neighbours to assist him.

One word more and I have done. A naturalist should always remember, that a country is not "worked out" because so and so has been there. I have always found that a diligent naturalist does better when he visits a country after another, because he has then a sort of frame-work to weave his labours around—his predecessor's labour acting as a sort of lamp to guide him through the obscure paths wherein he is wandering.

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